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Impact Area Groundwater Study Program

4 October 2001

Mr. Todd Borci
Office of Site Remediation and Restoration
United States Environmental Protection Agency – Region 1
1 Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

RE: Cleanup Level for Perchlorate in Groundwater at Camp Edwards on the Massachusetts Military Reservation

Dear Mr. Borci:

The National Guard Bureau (NGB) Impact Area Groundwater Study Program (IAGWSP) office has received your 27 July 2001 letter describing the Environmental Protection Agency's (EPA) Region 1 proposed 1.5 parts-per-billion (ppb) cleanup level for perchlorate in groundwater at the Massachusetts Military Reservation (MMR). The Army has reviewed the approach utilized by EPA Region 1, and for the reasons detailed below, believes that the proposed level is neither necessary for protection of human health nor appropriate given ongoing efforts to establish a national standard for perchlorate. To reach a resolution, we look forward to discussing this issue with your office and sharing developments in perchlorate science and policy as we continue to execute the IAGWSP.

As you are aware, the issue of perchlorate in drinking water supplies is a potential concern at a number of sites across the nation, and key federal agencies have been working together to develop credible scientific bases for addressing perchlorate issues. Since 1998, EPA and DOD have co-chaired the Interagency Perchlorate Steering Committee (IPSC). The committee includes representatives of EPA, Department of Defense, National Air and Space Administration, National Institute for Environmental Health Sciences (NIEHS), and interested State, tribal, and local governments. This committee has been working on an accelerated basis to generate and disseminate the scientific information needed to frame policy issues regarding potential perchlorate contamination. Consistent with EPA policy that independent, expert advice and judgment be used to assist the Agency on major scientific issues that contribute to policy or regulatory decisions, a peer review of the scientific data is currently planned for the Fall of this year. HQ EPA will most likely consider the recommendations of the peer review when it formally establishes regulatory standards for perchlorate. On October 1, 2001, the Deputy Under Secretary of Defense for Installations and Environment sent a letter to the Deputy Administrator of the EPA requesting that this peer review process be expedited because of the urgent need for the results to set cleanup standards. A copy of this letter is provided.

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Even though the Agency has not established regulatory standards for perchlorate, your office has proposed a groundwater action level that is lower than any interim standard set by any other regulatory entity in the nation. In fact, EPA's current interim guidance, which you referenced, recommends a provisional action level of 4-18 ppb for perchlorate, an even more conservative level than recommended by the 1999 EPA external peer review. At the state level, California has established an interim drinking water standard for perchlorate of 18 ppb, while Texas is using a 22 ppb interim standard. EPA Region 1 has provided no additional rationale or justification in setting its substantially lower action level. Scientists at the US Army's Center for Health Promotion and Preventive Medicine (USACHPPM) have carefully reviewed the information presented in your letter of 27 July 2001 and have come to the following conclusions:

1. EPA's currently recommended reference dose range (0.0001 mg/kg-day to 0.0005 mg/kg-day) for perchlorate is based on pharmacological data. These data yield a more conservative result for perchlorate than typical toxicological methods. Hence, the 4-18 ppb provisional cleanup level is already conservatively protective. As you know, pharmacological data typically are not used to generate RfDs, and the resulting provisional value in this case is one of very low confidence. As mentioned, the 1999 EPA NCEA peer review recommended an oral benchmark of 0.0009 mg/kg-day, which correlates to a groundwater cleanup level of 32 ppb. This RfD is based on comprehensive toxicological studies, and as such should be given a high level of confidence. Given that a reliable RfD based on solid scientific evidence is likely to be finalized within months, it seems imperative that decisions regarding the establishment of perchlorate action levels be postponed.

2. The 1.5ppb cleanup level developed by EPA Region 1 was based on conservative assumptions about potential risk to children. While EPA's general guidance in 1998 did stress the need to be more protective of children in environmental policy and cleanup, subsequent EPA perchlorate assessment guidance to its Regional Administrators in 1999 took into account developmental effects on humans, but *still* recommended the use of adult body weight to calculate provisional cleanup levels. Risk Assessment Guidance for Superfund states that to estimate contaminant exposure, an average body weight over the time period of exposure should be used. For exposures that occur over the lifetime of individuals, the default 70 kg value reflects the average body weight over that exposure period, *inclusive* of childhood years. Deviations from the 70 kg default are appropriate for scenarios where certain segments of the population are more exposed than others. For example, children often have higher soil exposures than adults. In this case, body weight values can be adjusted to reflect differential exposure of various age groups. However, even in such cases, the exposure estimate is not based solely on the childhood years. Rather, the lifetime exposure is calculated using a time-weighted average of exposure for the various age groups. Importantly, the time-weighted average is only used when different exposure rates or different sensitivities or toxic effects exist between age groups. Evidence for such age-related differences for perchlorate has not been discovered at MMR nor provided by EPA Region 1. Thus, considering the fact that no children are currently being – or anticipated to be – exposed to perchlorate-containing groundwater at MMR, EPA Region 1's approach is overly conservative and unsupported by universally-accepted risk assessment methods.

In conclusion, the IAGWSP is concerned that the 1.5 ppb cleanup level proposed by EPA Region 1 is unnecessarily conservative and inconsistent with standards that have been or will be applied elsewhere in the country. We believe it is prudent to wait for HQ EPA to develop a national standard based upon the data generated by the Interagency Perchlorate Steering Committee. I propose that we all work cooperatively to expedite the development of a national perchlorate standard. In the interim, the IAGWSP will continue to use HQ EPA's recommended 4-18 ppb range for remedial decision making, along with EPA Method #314 and associated reporting limits.

I have coordinated this response with the Department of the Army Headquarters, the National Guard Bureau, and USACHPPM, and I am looking forward to reviewing this issue with the EPA. Please contact me at (508) 968-5821 if you have any questions or comments.

Sincerely,

Benjamin P. Gregson, C.G., LSP
Program Manager

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